REMARKS

In reply to the Final Office Action of October 21, 2008, Applicants have canceled claims 20-23 and 29-30, and amended claims 1, 9, and 40. Accordingly, claims 1-19, 24-28, and 31-40 are pending, with claims 1, 9, and 40 in independent form, and claims 24-26 and 38 presently withdrawn.

Applicants acknowledge the Examiner's note regarding the Information Disclosure Statement that was filed on June 30, 2008. Concurrent with this reply, Applicants have filed another Information Disclosure Statement citing CN 1316103. Consideration of this reference during examination of the pending claims in this application is respectfully requested.

Claim 20 stands objected to under 37 C.F.R. § 1.75(c) as being of improper dependent form. Applicants have canceled claim 20 in this reply, rendering this objection moot.

Claims 1, 21, 39, and 40 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Sakamoto et al. (U.S. Patent No. 6,489,637, "Sakamoto"). Without conceding the merits of these rejections, but to expedite prosecution, Applicants have elected to amend each of independent claims 1 and 40.

Claim 1 has been amended to include certain limitations of claims 21 and 23. As amended, claim 1 covers radiation-emitting and/or radiation-receiving semiconductor components that include "a flexible lead frame comprising a carrier film that comprises at least a plastic film and a metal film [where] the plastic film has an opening and [a] semiconductor chip is positioned in the opening and directly contacts the metal film." Support for the amendment to claim 1 is found, for example, in Figure 3 of the application, and in previously pending claims 21 and 23, as noted above.

Claim 40 has also been amended to include certain limitations of claims 21 and 23. As amended, claim 40 covers covers radiation-emitting and/or radiation-receiving semiconductor components where "the semiconductor chip is mounted on a flexible lead frame that comprises a plastic material [and] ... the semiconductor chip is in direct contact with a metallic portion of the lead frame through the plastic material." Support for the amendment to claim 40 is found, for

example, in Figure 3 of the application, and in previously pending claims 21 and 23, as noted above.

With respect to claim 23, the Action admits that Sakamoto "fails to teach that the plastic film has an opening and the semiconductor chip is bonded to the metal film through the opening" (Action at page 13), but relies on Huber et al. (U.S. Patent No. 6,088,901, "Huber") to teach this subject matter. As amended, claim 1 requires that the semiconductor chip is "positioned in the opening" of the plastic film and "directly contacts the metal film" of the carrier film. Claim 40 requires that the semiconductor chip is "mounted on a flexible lead frame ... [and] is in direct contact with a metallic portion of the lead frame through the plastic material." Huber does not disclose such an arrangement. Instead, as shown in Fig. 3 of Huber for example, Huber's semiconductor chip 23 is not positioned in an opening in his "non-conducting flexible carrier substrate 15" (Huber, col. 4, lines 21-22), nor does Huber's chip 23 extend through substrate 15. Instead, chip 23 is positioned *above* substrate 15 in Huber's devices.

Further, chip 23 does not directly contact a metal film in Huber's devices. To the contrary, Huber's chip 23 "is connected to the contact faces 20 ... through the recesses 16 of the carrier substrate 15 ... by bonding wires 24 ... [and] is disposed on the carrier substrate 15" (Huber, col. 4, lines 26-28). In other words, Huber's chip 23 directly contacts non-conductive carrier substrate 15; chip 23 does not directly contact "foil or sheet 20" (Huber, col. 4, line 23).

Moreover, there is no suggestion in Huber to provide a semiconductor chip positioned in an opening of a plastic film, and which directly contacts a metal film (e.g., a semiconductor chip that contacts a metal film through a plastic film). Huber discloses methods that are designed to "stiffen the flexible substrate" (Huber, col. 1, line 43). To this end, Huber's devices include, for example, stiffening sheet 10 that is "laminated by an adhesive 30" (Huber, col. 4, line 31) onto the top surface of carrier substrate 15. Huber is concerned with *stiffening* his substrates so they can "withstand particular bending loads" (Huber, col. 1, lines 27-28). But, by introducing holes in his carrier substrate large enough to admit semiconductor chip 23, Huber would make his substrates *more flexible*, not less flexible. Based on Huber's disclosure, a person of skill in the art would find no reason to modify Huber's devices in this manner, as this modification would lead to substrates that are less stiff, in apparent contradiction to Huber's stated objectives.

Further, Huber apparently does not disclose the flexible lead frame required by claims 1 and 40. While carrier substrate 15 is made of a flexible material, Huber applies stiffening sheet 10 via adhesive to carrier substrate 15, thereby making his lead frame stiff and inflexible. As discussed above, Huber's disclosure is directed to methods for *stiffening* substrates to withstand greater bending loads. Assuming that Huber's objectives are successfully realized in his devices, Huber does not disclose flexible lead frames in the context of claims 1 and 40.

In view of the foregoing, Applicants submit that amended claims 1 and 40 are patentable over both Sakamoto and Huber, and respectfully request reconsideration and withdrawal of the rejections of claims 1 and 40 under 35 U.S.C. § 102(b). Claim 21 has been canceled in this reply, rendering moot the rejection of this claim. Claim 39 depends from claim 1, and is therefore patentable over both Sakamoto and Huber for at least the same reasons. Accordingly, reconsideration and withdrawal of the rejection of claim 39 under 35 U.S.C. § 102(b) is also respectfully requested.

Claims 2-8, 10-20, 22-23, 27-28 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sakamoto alone, or over Sakamoto in combination with one or more of the following references: Bank et al. (U.S. Patent No. 3,971,747, "Bank"); McNulty et al. (U.S. Patent Application Publication No. US 2002/0180351, "McNulty"); and Huber. In this reply, Applicants have canceled claims 20, 22, and 23, making the rejections of these claims moot. With regard to claims 2-8, 10-19, and 27-28, Applicants note that each of these claims depends from claim 1. As discussed above, claim 1 is patentable over both Sakamoto and Huber. Neither Bank nor McNulty cures the deficiencies of Sakamoto and Huber with regard to claim 1, at least because neither Bank nor McNulty discloses or suggests a semiconductor chip that is positioned in an opening of a plastic film and directly contacts a metal film of a carrier film, as required by claim 1. Accordingly, claim 1 is patentable over Sakamoto, Huber, Bank, and McNulty.

For at least the same reasons, each of claims 2-8, 10-19, and 27-28 is also patentable over Sakamoto, Huber, Bank, and McNulty. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 2-8, 10-19, and 27-28 under 35 U.S.C. § 103(a).

Claims 9, 29-30, and 32-34 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Harrah (U.S. Patent No. 6,936,855, "Harrah") in view of Leung et al. (U.S.

Patent Application Publication No. US 2005/0062140, "Leung"). Claims 29-30 have been canceled in this reply, rendering moot the rejections of these claims. Without conceding the rejection of claim 9, but to expedite prosecution, Applicants have amended claim 9 in this reply.

Amended claim 9 covers methods where "the semiconductor chip of each component, including subregions of the lead frame, the carrier substrate or the flexible lead frame, is placed in a respective cavity of an injection mold, and an injection channel is led through each of the multiple semiconductor components." Support for the amendment to claim 9 is found, for example, in previously pending claim 29, and in the English translation of the application at page 7, paragraph 4.

Neither Harrah nor Leung, alone or in combination, discloses or suggests the methods of amended claim 9. Harrah does not disclose the use of "an injection channel ... [that leads] through each of the multiple semiconductor components." Instead, with respect to housings for his LED components, Harrah states only that each component is "encapsulated in a corresponding housing ... along with the corresponding bond wires" (Harrah, col. 7, lines 17-19). Each housing includes "a set of through holes ... for plastic or elastomer flow during casting or molding of *this housing* onto the present LED array" (Harrah, col. 7, lines 28-33, emphasis added). In other words, it appears from Harrah's disclosure that the housing for each LED is separately molded by filling a mold that corresponds to only that housing through flow holes that provide access only to the mold for that housing.

Harrah discloses similar methods for filling hollow lens interiors. He states that "[c]lear gel or elastomer may be injected from below into the hollow interior of each lens through a hole (e.g., hole 40BM shown in FIG. 4) in the corresponding heat spreader (e.g., heat spreader 60), [and] in the corresponding dielectric layer (e.g., dielectric layer 50)" (Harrah, col. 7, lines 60-64). Once again, it appears from Harrah's disclosure that access is provided to the interior of each lens separately through a corresponding fill hole. Referring to Figure 4 of Harrah, each lens includes a separate corresponding fill hole that independently provides access to the interior of the lens.

In contrast, Applicants have been unable to find any disclosure in Harrah that refers to an injection channel that leads through *multiple* semiconductor components, as required by amended claim 9. It appears instead that Harrah discloses separate molding of each lens through

separate injection channels, rather than molding multiple plastic bodies through an injection channel that leads through multiple semiconductor components.

Leung does not cure Harrah's deficiencies. In particular, Leung does not disclose methods in which the semiconductor chip of each component is placed in a respective cavity of an injection mold, with an injection channel that leads through each of multiple semiconductor components. Instead, as shown for example in Figure 4 of Leung, each of Leung's LEDs is arranged in *the same* cavity of his injection mold, which mold is then filled with molding material. As best Applicants can determine, Leung's methods do not include use of an injection channel that leads through each of multiple semiconductor components, each placed in a respective cavity of an injection mold, as required by amended claim 9.

In view of the foregoing, Applicants submit that neither Harrah nor Leung, alone or in combination, discloses or suggests the methods of claim 9. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 9 under 35 U.S.C. § 103(a). Claims 32-34 depend from claim 9 and are therefore patentable over Harrah and Leung for at least the same reasons. Reconsideration and withdrawal of the rejections of these claims under 35 U.S.C. § 103(a) is also therefore respectfully requested.

Claims 31 and 35-37 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Harrah in view of Leung and further in view of one of Bank or Huber. Without conceding the merits of these rejections, Applicants note that each of claims 31 and 35-37 depends from claim 9, which is patentable over Harrah and Leung as discussed above. Neither Bank nor Huber cures the deficiencies of Harrah and Leung with regard to claim 9, at least because neither Bank nor Huber discloses methods that include injecting molding compound into an injection channel that leads through each of multiple semiconductor components, each placed in a respective cavity of an injection mold, as required by amended claim 9. Thus, Applicants submit that amended claim 9 is patentable over Harrah, Leung, Bank, and Huber.

For at least the same reasons, each of claims 31 and 35-37 is also patentable over Harrah, Leung, Bank, and Huber. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 31 and 35-37 under 35 U.S.C. § 103(a).

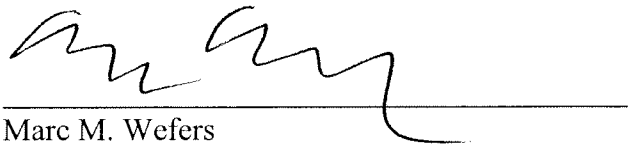
In view of the foregoing, Applicants ask that the application be allowed.

Canceled claims, if any, have been canceled without prejudice or disclaimer. Any circumstance in which Applicants have: (a) addressed certain comments of the Examiner does not mean that Applicants concede other comments of the Examiner; (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims; or (c) amended or canceled a claim does not mean that Applicants concede any of the Examiner's positions with respect to that claim or other claims.

Fees for the Petition for Extension of Time and for a Request for Continued Examination are being paid concurrently on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account 06-1050, referencing Attorney Docket No. 12406-0187US1.

Respectfully submitted,

Date: 2/23/09



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